MEDICAL OFFICERS OF SCHOOLS ASSOCIATION

Forms of Mental Defect

BY

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MR. PRESIDENT, LADIES AND GENTLEMEN,—I am very sensible of the honour you have done me by asking me to open this discussion. I am told that I am not expected to confine my remarks to the children who fall within the scope of the "Defective and Epileptic Children (Education) Act," but to include also those whose mental powers are of a lower grade. This opens up a very wide field for discussion, and I can do little more in so vast a subject than dispose of the various forms in the most summary fashion. However, by dealing especially with the less illuminated parts of the subject, and those most beset with doubt and difficulty, I hope I may provoke criticism and elicit the opinions of others whose words will carry greater weight than my own.

The forms of amentia have been classified variously, but never very successfully. The grouping of aments into idiots, imbeciles and feeble-minded, and their various subdivisions, according to the degree of mental deficiency, whilst useful, especially from the point of view of the layman and the lawyer, has little scientific value. Unquestionably the best basis for classification would be an ætiological one, but in the present state of our knowledge such a grouping is impossible, for in only a small proportion of cases can we correlate cause and effect. We are, therefore, compelled to fill up the large gaps which remain in such a classification by cases grouped together according to clinical features or pathological irregularities. The initial division of amentia which I think to be the best is that advocated by Tredgold into *primary* amentia, or that which results from intrinsic, inherent defect in the general bioplasm, and *secondary amentia*, of that which is due to some abnormality

* Read before the Medical Officers of Schools Association, November 29th, 1912.

in the environment to which the developing brain is subject. The great majority of cases fall into the first class; not more than about 10 per cent. can be regarded as secondary.

Suggested classification of classifiable forms of amentia :

AMENTIA.

Primary :

- Genetous or simple (unclassified).
- Microcephalic.
- Mongolism.

Epileptic ?

Secondary :

- Traumatic, vascular, toxic, infective (paralytic).
- Sclerotic ;
  - atrophic ;
  - macrocephalic ;
  - nodular or tuberous.
- Hydrocephalic.
- Syphilitic.
- Amaurotic family idiocy (infantile cerebral degeneration).
- Ductless gland defect ;
  - thyroid (cretinism) ;
  - supra-renal, genital, pituitary, pineal.
- Sense deprivation (isolation).

Mentally defective children (feeble-minded children).

Morally defective children.

Idiots savants.

Among *primary* aments evidence is often found that Nature has fallen below her usual standard in the supreme effort of reproduction, and abnormalities occur of body as well as of mind. Not a few show the well-known stigmata of degeneration or other congenital malformations. Included among them are all grades of mental deficiency, from slight degrees of feeble-mindedness to the purely vegetative form of idiocy. It is generally admitted that of the causes which lead to a defective germ-plasm a neuropathic inheritance is the most important. Thus Tredgold found "that over 80 per cent. of persons suffering from the severer grades of amentia were the descendants of a pronounced neuropathic stock. In 16 per cent. the heredity was in the form of insanity or epilepsy." Other observers give different percentages, varying from 42 per cent. (Beach and Shuttleworth) to 70 to 75 per cent. (Caldecott.)

Other acknowledged factors are alcoholism, tuberculosis, syphilis, and consanguinity. In the light of our present conception of heredity consanguinity can only act by producing a summation of retrograde forces, by the meeting of recessive with recessive, and not by kinship *per se*.

The influence of syphilis in the parents on the production of amentia is worthy of careful consideration. Fletcher Beach found it present in only 1·17 per cent. of pauper aments, Langdon Down and Shuttleworth in 2 per cent. of cases, and Tredgold in 2·5 per cent. It must be remembered, however, that in those cases where clinical signs of congenital syphilis are discoverable, the amentia is generally of the secondary form, and is due to infection of the fœtus through the maternal blood, and not due to its devitalising action on the germ-plasm. It is the effect of syphilis in causing *primary* amentia which is difficult to estimate. By relying too much on clinical data we have probably under-estimated the importance of syphilis in this respect. Since the introduction of the Wassermann test certain figures have been obtained which favour this conclusion. W. C. Stoner and E. L. Keiser applied this test to 1050 unselected cases of all grades of mental deficiency and found it positive in 7·9 per cent.; Lippmann in seventy-eight cases obtained a positive reaction in 9 per cent. Dean in 330 idiots found the reaction positive in 15·4 per cent., whilst Raviart, Breton, Brückner and Rautenburg examined 246 cases by this method, of which more than 30 per cent. were positive. Although these figures, which I have selected from others of similar import, differ widely from one another, they suggest that syphilis is a far more frequent cause of amentia than we have believed hitherto.

The majority of children with primary amentia cannot be classified according to ætiology, pathology or external appearance. Such form the large group termed by Ireland "genetous" and by Tredgold "simple" mental deficiency. It includes children with all grades of defective mind, with or without associated physical stigmata. The only division we can apply to them is such as is suggested by some outstanding mental characteristic, as into excitable, destructive, fatuous, apathetic, etc.; or by the number of talents they possess, into idiots, imbeciles and feeble-minded, each division of which may be subdivided into those of high, medium or low grade.

There are two groups of primary aments, however, the members of each of which possess mental and physical characters

so nearly alike that we are justified in separating them from the bulk. I refer to the microcephalic and Mongolian forms. The term *microcephaly* should not, I think, be applied to all those whose cranial measurement falls short of the average, or even of the normal, as is done by some, but should be restricted to those whose skulls and whose chins recede, giving them the characteristic bird-headed appearance. There is great lack of growth of the cranial vault, so that it resembles somewhat a sloping roof. This is produced by premature synostosis of the bones, but I suppose no one now believes that the cerebral hypoplasia is so produced. General growth is stunted, and those who attain adult life are dwarfs almost invariably. In mental capacity the majority are grouped among the less troublesome imbeciles, many are idiots, a very few are merely feeble-minded.

I cannot enter here into the many features which contribute to the clinical picture of *Mongolian* imbecility. Mongols are the most attractive of aments. Their funny faces, playful ways, grotesque grimaces, apt mimicry and even tempers make them amusing playmates and endear them to their parents, despite their lack of wits. I am accustomed to divide them into two groups—those who have brachycephaly and those who have none. More than in any other form of amentia, the children present gross faults of visceral maldevelopment, especially of the heart, as Dr. Garrod has shown. In one case described by Dr. Garrod and myself, complete transposition of the viscera was present. Among other striking features are the projecting, granular or fissured tongue, the short and incurved little fingers, and the extreme hypotonia of muscles.

Their Mongolian eyes have been thought by some to indicate our historical racial connection with those who dwell in Asia, but this doubtful compliment to our allies has no other support, for even the characteristic malar prominence is wanting.

These cases loom larger in hospital practice than outside, for death removes many in early life by infective diseases, especially broncho-pneumonia. It was the cause of death in six out of thirteen in the post-mortem annals of the Hospital for Sick Children, Great Ormond Street; tuberculosis accounted for three, epidemic diarrhœa for one, pneumococcal peritonitis for one, whilst the other two died from their congenital heart disease alone. Four had cardiac malformations. The brain was not noticeably abnormal at the necropsy in more than three cases, in two of which a few convolutions appeared rather smaller

than usual, and in the other the cerebellum was small. In only one was a hypoplasia of the pons suspected, although this condition has been regarded as important by some writers.

Want of procreative force appears to play a prominent *rôle* in the production of Mongols, for one or more of four causes is usually present: either they occur at the end of large families or their parents are past the actively generative period of life or there have been frequent pregnancies, or, finally, the mother is in an enfeebled state of health.

Educationally, though a few may even pass muster with their brothers and sisters, as Dr. Shuttleworth has shown, the majority never become more than hewers of wood and drawers of water. Their appreciation of rhythm can be utilised to educate them to perform automatic acts by imitation, but they cannot be trusted to deviate from their accustomed movements when originality, however slight, is called for.

I have classed *epileptic* amentia neither with the primary nor secondary kinds, for epileptiform seizures form one of the common symptoms of many varieties and degrees. It is open to discussion whether epilepsy ever bears such a relationship to amentia that we are justified in considering those cases where fits are frequent as a class apart. If the term "epileptic amentia" be used at all, it should be reserved for the cases where no mental defect is noticed until the fits begin, but where the fits are functional merely and unassociated with obvious organic changes. But even in these I cannot but believe that there is a pre-existing functional derangement of the cortical cells, often accompanied by slight organic changes, which render them prone to outbursts of useless energy. In my opinion such local causes as dentition, cutaneous stimulation, indigestible food and the like are but the fingers which pull the trigger—the over-excitable nerve-cells are already in existence. This, I think, is borne out by the frequency of neuropathic heritage in such patients. It is true that the inevitable exhaustion of such overaction is denoted by a considerable accession of the outward signs of mental defect, and repeated fits at short intervals will wear out the nervous machine, but, properly, the result should be styled dementia, and not amentia.

Concerning the *secondary forms* of amentia I must necessarily be brief. The first group consists of amentia due to asphyxia neonatorum, to traumatism before, at, or after birth, to thrombosis or embolism of cerebral vessels, to meningeal hæmorrhage, to toxic influences, and to infections possibly producing menin-

gitis or encephalitis, or both together. The changes which may be found after death in such cases are localised areas of sclerosis or atrophy, thickening and adhesion of membranes, cysts containing clear or blood-stained fluid, pseudo-porencephaly, hydrocephalus, and occasionally cerebral hemiatrophy.

It is usually impossible during life to state with any degree of certainty what lesion is present, though a careful history, if obtainable, is of considerable value. Polioencephalitis is probably a commoner cause than we have been accustomed to think, and the fuller knowledge of this disease, which we have attained in recent years, will probably inculpate it in not a few.

Not infrequently the children who are the subjects of these forms of amentia are well grown and attractive in appearance, and, like other secondary aments, do not show the stigmata so common in the primary forms. Besides mental deficiency the two outstanding features of such cases are paralysis of the upper motor type (with its subsequent contractures and athetotic movements) and epileptiform fits.

There is no constant relation between the degree of paralysis, the amount of mental defect, and the frequency or extent of the convulsions. The amount of compensation of which the undamaged cells are capable appears to differ widely, and is influenced to a certain but variable extent by education. There may be, on the one hand, no mental defect; on the other, idiocy. Commonly a mild degree of imbecility occurs, of a facile and fatuous type. Frequent and severe fits are of serious import.

Of the three varieties of *sclerotic* amentia, the atrophic or walnut brain form is the worst, but fortunately the children do not generally survive infancy. Those who survive are usually idiots, and respond but little to training, progressive dementia supervening sooner or later. Paresis and spasticity rather than paralysis occurs, but the most prominent feature is a fine tremor, occasional or persistent, made worse by voluntary effort, sometimes limited to the head or hands, sometimes general.

The macrocephalic form is somewhat commoner, and is known by the large square head, which differs from that of hydrocephalus in that the greatest circumference is at the level of the superciliary ridges and not above them, and in the absence of a bulging fontanelle or open sutures; headache, tremor, and ataxy occur, and epileptiform fits are common. The mental defect is usually one of mild imbecility, but idiocy

may supervene, especially if the fits are frequent. Few of the children attain maturity, and these are of the milder grades with little tendency to fits.

Convulsions are prominent also in the nodular form, being often the first manifestation of disease. Tremor, headache, and unsteadiness of balance and gait occur, as in diffuse sclerosis, but spasticity and contractures are rare. The mental defect is usually severe, and in these cases also progressive dementia follows, and maturity is seldom attained.

Hydrocephalic amentia is sufficiently well known. In a few cases it is due to some developmental defect, such as occlusion of the iter, or of the foramina of Majendie and Lutschka. In primary amentia, too, with cerebral hypoplasia, cerebro-spinal fluid fills the vacuum which Nature abhors. In many cases it is secondary to meningitis, either of intra-uterine or extra-uterine life, especially when the posterior part of the base is affected and the channels between the fourth ventricles and subarachnoid cistern are sealed. In others no cause is discoverable.

In only the chronic or arrested forms is the mental state of importance, for the others soon terminate fatally. Surviving hydrocephalics are usually placid, affectionate, and obedient and may often be trained to do fair manual work. They are hampered, however, by their physical weaknesses, for they are frequently paraplegic and suffer from severe or total blindness or deafness. Sometimes the mind is very little affected. Among the most serious cases of hydrocephalus are those which are produced after the cranial bones have united firmly, for in them either increasing intra-cranial tension leads to death, or, if the condition is arrested, a low grade of mental deficiency is likely to remain.

The influence of *syphilis* upon the germ-plasm I have already referred to. Secondary amentia due to syphilis, or true *syphilitic amentia*, is known by the concurrence of the signs of congenital syphilis. There is at first nothing distinctive about the state of the mind, but for twelve years or so the defect is usually slight, the child attending a school for mental defectives and making little progress there. When he is from twelve to fifteen years old juvenile general paralysis is to be expected. He becomes more restless and irritable, spiteful, and subject to fits of temper. Mania or melancholia may occur, with hallucinations and delusions. The gait becomes unsteady, the lips, tongue and hands tremulous, the speech slurred, and the pupils react sluggishly to light. Gradually the signs of general

paralysis accumulate, until in about five years death from coma ends the scene.

Syphilis may also be responsible for mental deficiency due to sense-deprivation, by producing blindness or deafness.

Amaurotic family idiocy is too rapidly fatal to concern us now.

Of the amentias due to *deficient secretion of the ductless glands* that due to imperfect development of the thyroid or cretinism is the best known, but it is well not to overlook the truth that dwarfing both of mind and of body may arise from hypoplasia or retrogressive changes in the genital, supra-renal, pituitary and pineal glands. The well-marked cretin is easily recognisable. Among other signs, the flat, coarse features, thick lips, baggy eyes, dry and puckered skin, large tongue, flat-topped head and stunted growth make up a clear clinical picture. Movements are lethargic, and slow, and the child, if untreated, may be quite destitute of intellectual powers, or on the other hand, may be only slightly defective. Probably there are many children of a little pronounced type, with slighter defect of both body and mind, who would wax stronger in wisdom and stature under the influence of thyroid extract.

Prognosis in cretinism is notoriously unsafe, for whilst some become normal human beings under treatment, other are little ameliorated, especially on the mental side. This, however, is no excuse for not giving thyroid a prolonged trial, yet I am afraid there are several cretins in the centres for mentally defective children and elsewhere who have never been treated adequately.

In cases were infantilism and mental deficiency co-exist, but thyroid treatment is unsuccessful, perhaps a better result might follow the administration of a combination of the dried extracts of other ductless glands as recommended by Dupuy.

Thanks to modern methods of education, the children who are mentally deficient from *sense-deprivation* are comparatively rare. Blindness and deafness, especially the former, retard mental development; even severe degrees of myopia produce a narrowing of the mental outlook as well as of the field of vision, and the child blind from early life has a restricted world of its own. True mental deficiency rarely occurs as a direct result of blindness and deafness; if it does, it dates from early childhood, when suitable education has not been employed. Those in whom education fails, or who become troublesome and subject to delusions, are usually primary aments or suffer from something more than mere isolation.

In the few minutes left at my disposal I shall just touch upon that difficult problem, the recognition of the "mentally defective" child, using the term to mean the child for whom the Defective and Epileptic Children (Education) Act provides "who, not being imbecile, and not being merely dull and backward, is defective—that is to say, by reason of mental (or physical) defect is incapable of receiving proper benefit from the instruction in the ordinary public elementary schools, but is not incapable, by reason of such defect, of receiving benefit from instruction in such special classes and schools as are in this Act mentioned."

All will agree that there is no more difficult duty of the school medical officer than this, for, on the one hand, he is in danger of including the imbecile, and on the other, the merely dull and backward. Some of these children are easily detected by the way they walk into the room, their pose, their appearance, their attitude towards the doctor, and their lack of attention and concentration; but others require to be examined on more than one occasion before a just estimation of their minds can be arrived at.

For there are children whose mental powers may be said to be *latent*, whose minds are like unopened buds in a wintry spring. Give them but the sun of a little sympathy and their minds expand with unwonted vigour, until they rival, or even surpass, their fellows.

There are others, child misanthropes, having no self-respect, who accept the dunce's cap with equanimity until some cause for self-congratulation alters their whole career. Among the poor it may be no more than a new suit of clothes or a clean head, but once awakened, their self-respect grows by what it feeds on, and, with a little encouragement, they develop along normal lines.

Others are poor scholars in the academical sense; they never read well, they cannot spell; judged by educational tests alone they might be classed as mentally defective; but they are alert and well endowed with *common* sense, and, school days over, cut no poor figure in the world. Whole families sometimes have these characteristics, and they are distinctly hereditary.

We all know the very nervous, trembling child, who fidgets and fumes under examination, whose heart thumps forcibly, who cannot speak intelligently, and whose brains go wool-gathering from sheer funk. No reliance at all can be placed on a single examination of such a case.

Physical disease, exhaustion from work out of school or late

hours, underfeeding, blocking of sensory stimuli by defect of vision or hearing, all produce children whose mental state comes up for consideration.

For these various reasons there is, in my estimation, no royal road to the diagnosis of a mentally defective child. In many instances we want every available datum. A knowledge of the family history and of the home circumstances and a systematic physical examination are essential. I do not believe that we can label a child as defective in mind by any fixed test, or series of tests, no matter how carefully thought out. As a means of exploring the workings of the child's mind they are undoubtedly useful, but they cannot properly be regarded as standards. Judged by them alone, the minds of many children who are not mentally defective will be weighed in the balance and found wanting.

Medical Officers of Schools Association.

Meeting held at 11, *Chandos Street, on November 29th,* 1912.

Discussion on Dr. Langmead's Paper.

Dr. Kerr opened the discussion by pointing out that Dr. Langmead had approached the subject from the pathological side rather than from the school standpoint, and that an investigation from the latter point of view was exceedingly difficult, and had only quite recently been commenced. Practically our present knowledge of mental defect, from the educational standpoint, dates from the inception of special schools and classes for the children concerned. The results of these special schools in turning out efficient citizens have so far been disappointing, and probably a good deal that is at present being done is wasted. One of the great difficulties consists in proper classification. We find that defectives fail to fit into their proper place, that there are very varying grades, and that many of the children are defective in only one point. Dr. Kerr suggested for these children, who entirely fail to fall into place in a pathological classification, the name of mentally defective by physiological variation. At present all these varieties are mingled together, and the education is the same for all. If good results are to be obtained, a much more elaborate system of grading and classification must be adopted. Dr. Kerr further alluded to the importance of heredity and to the difficulties of investigating its influence. He mentioned a family of four aments whose father was the only surviving (thirteenth) child of an epileptic, the thirteen older children having all died in early life; this he thought might possibly have been an instance of the effect of syphilis in the third generation. He also recalled a family the history of which was worked out by Garland, in which an ancestor, who died in

1837, had first an illegitimate child by a mentally deficient woman, and subsequently married and had a family. There were 437 descendants of the illegitimate stock, of whom 130 were feeble-minded, and 496 descendants of the legitimate stock, of whom none were feeble-minded.

Dr. SHRUBSALL called special attention to the lack of instruction given in the medical schools on the minor forms of mental defect. Cases going from the schools to the hospital most often returned with the message that there was nothing wrong. It was to be hoped that now that more interest was being taken in the subject, the attendance of a certain number of these children at the hospitals for the purpose of diagnosis, and, when possible, of treatment, would be encouraged. He alluded also to the difficulty in a short examination of making anything out of some of the children to be examined, particularly of inducing them to take an interest in what they were being asked about. Whilst this lack of interest might be simple shyness, it might also be a sign of their mental defect.

Mrs. BURGWIN referred to the awkward position of those who attempt to define a mentally defective child, and instanced the difficulties of the Departmental Committee. The definition arrived at was drawn up entirely from the educational and not from the medical standpoint. She did not think that too careful a classification was advisable. It was only possible in large residential institutions, and, further, if the grades were mixed, the child who was able to do something would often act as a stimulus to the child who was less capable. It is not easy to make up one's mind how far a child can be pushed; some will do nothing unless constantly stimulated; others if set a task would continue to do it for an indefinite time until stopped. Mrs. Burgwin expressed the sincere hope that it would be made compulsory for all education authorities to make provision for the education of mentally and physically defective children, and further asked for a discussion on the question whether it would not be better that defective children should be under the care of a special Board and not under the Lunacy Commissioners.

Dr. C. R. SALISBURY (Hanwell Schools) inquired whether there was any real connection between mental deficiency and incontinence and dirty habits. His own experience was that there was not. He found that these cases respond to treatment readily for a short time, but tend to relapse when the novelty of a treatment has worn off. Out of 650 children in his schools thirty boys and only three girls suffered thus. Perhaps three

or four of the boys were defective, and all three girls showed mental peculiarities. One was a very passionate child, and when corrected had on several occasions mutilated herself; another, aged 13 years, is stunted in growth, only Standard 2 level, and bears traces of an accident by a "black look" on her face next morning; the third is macrocephalic. Dr. Salisbury thought that there was no real connection between these habits and mental defect, but that many of the children are of an abnormal mental type.

Dr. MORLEY FLETCHER discussed the question of incontinence raised by the last speaker. He pointed out that such cases, at any rate in boys, are not uncommon in the large public schools, and that he saw no reason to associate the condition with mental defect. Such boys are usually delicate, nervous, rapidly growing individuals, and the accidents at night are often the result of an overtiring and exhausting day. He agreed with Dr. Kerr as to the difficulty of classifying the different grades of mental defect, and regretted that the slighter cases had to be associated in school with the more severe types to the disadvantage of both. He expressed the hope that much closer attention would be paid in future to the part played by heredity. All investigations of this factor showed its immense importance, and only when this is recognised and dealt with by legislative measures would the grievous burden on the nation of its mentally defective children be properly dealt with and thereby lightened.

Dr. EDER saw no reason to accept a causal relationship between enuresis and what is called mental defective. This form of incontinence was a neurosis, and was regarded by some authorities as a form of, or substitute for, masturbation. The satisfaction with which so many medical men accepted heredity as an all-sufficient explanation of mental or other defects was but an outgrowth of inertia. It was so easy to lay the blame on the children or parents, and absolved us doctors from any further need of investigation or thought. But even the slight discussion this afternoon showed that much more careful classification and gradation was necessary, and that even the specialists were unable to frame any definition of a mental defective that would stand a scientific test. Without such definition ordinary persons, like himself, would never willingly consent to have cases of mental defect imprisoned for life or even for long periods. He was not overwhelmed by the families mentioned by Dr. Kerr; most practitioners would know how hardly dealt by in the world are illegitimate children. Most

men in practice could bring forward instances for and against the view that mental defective parents always have mentally affected children. Nothing had been said to-day which could justify coercive legislation.

Dr. ARGLES, referring again to the question of enuresis, mentioned that it was of the utmost importance to tell the young sufferers from this condition that they will almost for certain eventually get quite right.

Mr. ELMSLIE, from experience in the schools for physically defective children, stated that there were certain special classes of these who tended to show mental in addition to their physical defect. The first class was obviously the cerebral palsies; these children, when not actually mentally defective, were nearly always mentally peculiar. The second class consisted of children with such congenital deformities as talipes, who showed a larger proportion with mental defect than did the other children. The third class consisted of the children who had suffered from the more severe manifestations of rickets; these were nearly always to some extent defective. Mr. Elmslie suggested that Dr. Langmead's classification required an additional place for these as mentally defective as the result of defective nutrition. A further point arises among the children who have been invalids for long periods in early life, and have missed the earliest stages of education. These, on admission to a special school, often appear to be mentally defective and are brought forward by the teachers as such. In the course of a year or two, however, they begin to pick up and eventually they may do quite well. They are suffering from mental stagnation, very difficult to distinguish from mental defect except by trial of the effect of education.

The PRESIDENT (Dr. SHELLY) said that it was evident from the discussion that had taken place that the subject was not yet ripe for classification. That for the present some will no doubt attempt a pathological classification such as Dr. Langmead had drawn up, but that others will keep to a strictly practical grading such as is necessary in their work. It is too early even for a medico-legal definition, though this point will no doubt before long have to be considered by the wisdom of Parliament. Treatment had been very little touched upon, but it might be useful to go further back and consider possible causes. What is the importance of syphilis? Would it not be possible to get some light upon this by investigations amongst tribes into which syphilis had only been recently introduced? Referring to enuresis, Dr. Shelly thought that the sufferers

usually showed some mental variation on the minus side, but that the condition was often kept up by minor details such as over-fatigue, excessive bedclothing, and excessive drinking, particularly in the evening.

Dr. LANGMEAD, in reply, said that he quite acknowledged the impossibility of grouping the majority of cases of mental deficiency by any means of classification. He had endeavoured to arrange as scientifically as possible the minority in order to review our present knowledge of the subject. He quite agreed with those who had spoken of the difficulty of estimating a child's intelligence from the educational point of view, and with the many physiological or psychological variations. He supposed all who had had to deal with school-children were convinced of the necessity of many intermediate schools for children who were backward and dull but not defective. With regard to enuresis, he was accustomed to consider it as occurring in three groups of children. First a small but important group in which it was due to actual local irritation or disease, such as stone, balanitis, cystitis or bacilluria. Secondly, the largest group, consisting of children who were nervous, highly strung, imaginative and impulsive. He would not describe them as lacking something, as the President had suggested, but was not sure they were not rather above the average in intelligence. He thought they were the subjects of an easily excitable nervous system, so that when their bladders filled, completely or partially, the reflex was rapidly excited and the bladder was emptied incontinently and precipitately. Thirdly, a smaller group of children actually defective, both in bodily and mental growth. It was in these that the action of thyroid was most beneficial. He thanked the Society for the courtesy with which his paper had been received, and for the very suggestive and valuable discussion which it had provoked.

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